

34, 26-27, 29-44, 46-47, 52-64, and 69-81 were indicated as being allowable if rewritten in independent form to include the base claim and any intervening claims.

Applicants acknowledge the indication of allowable claims, but respectfully traverse these rejections in light of the arguments below.

A. Applicants' Claimed Invention

Independent claims 1, 21, 24-25, and 45 are generally directed to operating a computer aided design (CAD) system in presumptive mode. A selected graphic object is moved relative to a graphic pointing symbol, and the system determines when the selected graphic object is within a predetermined proximity of an underlying graphic object. The selected graphic object is then manipulated into a geometric relationship with the underlying graphic object according to predetermined geometric rules. This geometric relationship is dynamically updated based on movement of the graphic pointing symbol while the graphic pointing symbol remains within the predetermined proximity of the underlying graphic object. The cited references do not teach nor suggest these various elements of Applicants' independent claims.

Independent claims 48 and 65 are generally directed to a computer-aided design system that displays a first graphic object on a computer and displays at least one point of interest on the computer when a pointing symbol is within a predetermined proximity of the first graphic object.

B. The Venolia Reference

Venolia describes a system for automatic alignment of manipulated objects in two-dimensional and three-dimensional graphic space. The system provides an alignment field gradient which emanates from objects surrounding a manipulated object. As a user manipulates the object, the system attracts the manipulated object into an aligned position and orientation with another object in the displayed three-dimensional display space. The system provides alignment of all combinations of vertices, edges and planar faces for three-dimensional polyhedral objects and for all combinations of vertices and edges for two-dimensional polygonal objects.

C. The Eckart Reference

Eckart describes a front end processors in a graphics architecture execute parallel scan conversion and shading to first process individually assigned primitive objects for providing update pixels. A crossbar accommodates data rearrangement whereby parallel pixel processors with associated memory capabilities (frame buffer banks) perform visibility and blending operations on predetermined sequences of update pixels to provide display pixels. The pixel processors identify with sequences of pixels in the display in patterns designed to equalize processor loads for pixels located along scan lines or distributed over an area. Specific distribution criteria are disclosed for patterns. One form of pixel processor organization incorporates a distributed frame buffer with FIFO memory and control stacks. Display pixels are received by a multiplexer to supply a digital-analog connector with display data in raster sequence.

D. The Rostoker Reference

Rostoker describes a system for interactive design and simulation of an electronic circuit that allows a user to design a circuit by graphical entry and to view full or partial simulation and design results simultaneously, on a single display window. The user is able to define the form of a display of speed, delay, loading, symbols, simulation input and/or output values on each node and any path of the design. Simulation may be user-defined or other process time. The user is further able to view any information relevant to any object in the design at any level of design abstraction, and is able to view multiple levels of design abstraction simultaneously and to display information common to the various representations.

E. Applicants' Independent Claims 1, 21, 24-25, and 45 Are Patentable Over The References

With regard to independent claims 1, 21, 24-25, and 45, the Applicants' invention is patentable over Venolia, Eckart, and Rostoker, because the cited references do not teach nor suggest the various elements of Applicants' claims. Specifically, the references do not teach or suggest the claim limitations directed to determining when a selected graphic object is within a predetermined proximity of an underlying graphic object, and then manipulating the selected graphic object into a geometric relationship with the underlying graphic object according to predetermined geometric

rules. In addition, the references do not teach or suggest the claim limitations directed to dynamically updating the geometric relationship based on movement of the graphic pointing symbol while the graphic pointing symbol remains within the predetermined proximity of the underlying graphic object.

In contrast to Applicants' invention, Venolia merely describes an alignment field gradient which emanates from objects surrounding a manipulated object. Note that Venolia, at col. 8, lines 30-51, states the following:

"In a preferred embodiment, alignment may be made with respect to any feature (face, edge or vertex) of an object. Just as with a magnet having a thin rectangular shape, all features of the magnet, the planar faces, the edges, and the corners are attracted to the refrigerator door.

Moreover, just as any one of the magnetic surfaces may contact the door, any surface on a manipulated object may contact another object. The rectangular magnet or an object in the alignment field gradient will be positioned so that its corner (vertex), its edge, or the front and back planar faces of the magnet or object may contact the door or another object when desired. The alignment field gradient of the present invention emulates the magnet's surface contacting the door, which can also slide around on the door's surface, within the two-dimensional plane of the door's face, without losing contact. The present invention also emulates rotation on the two-dimensional plane of the door without losing contact with it. Further, the present invention emulates the behavior of the magnet which can be gradually removed from contact with the door to terminate contact between the magnet and the door."

Consequently, Venolia teaches away from Applicants' invention because it does not manipulate the selected graphic object into a geometric relationship with the underlying graphic object according to predetermined geometric rules. Instead, the selected graphic object in Venolia is merely brought into contact with the underlying object according to manual manipulation of the selected graphic object.

In addition, Venolia teaches away from Applicants' invention because it does not dynamically update the geometric relationship based on movement of the graphic pointing symbol while the graphic pointing symbol remains within the predetermined proximity of the underlying graphic object. Instead, the selected graphic object in Venolia remains in contact with the

underlying object even when moved. Moreover, the relationship between the objects in Venolia is not based on the position of the pointing symbol relative to the underlying object, but instead is based on the proximity of the objects themselves.

Eckart fails to overcome the deficiencies of Venolia. Recall that Eckart was cited merely for teaching the limitations found in dependent claims 14-15 and 38-29 directed to partially deleting only selected ones of a plurality of graphics objects corresponding to the objects' respective clip regions. Consequently, the combination of Venolia and Eckart does not teach or suggest all the elements of Applicants' independent claims.

Rostoker also fails to overcome the deficiencies of Venolia. Recall that Rostoker was cited merely for teaching the limitations found in dependent claim 24 directed to a database/file structure on a CAD system. Consequently, the combination of Venolia and Rostoker does not teach or suggest all the elements of Applicants' independent claims.

Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Venolia, Eckart and Rostoker. In addition, Applicants' invention solves problems not recognized by Venolia, Eckart and Rostoker.

Thus, Applicants submit that independent claims 34, 43, and 52 are allowable over the references. Further, dependent claims 35-42, 44-51, and 53-60 are submitted to be allowable over the references in the same manner, because they are dependent on independent claims 34, 43, and 52, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 35-42, 44-51, and 53-60 recite additional novel elements not shown by the references.

F. Applicants' Independent Claims 48 and 65 Are Patentable Over The References

With regard to independent claims 48 and 65, the Applicants' invention is patentable over Venolia, because the cited reference does not teach nor suggest the various elements of Applicants' claims. Specifically, the reference does not teach or suggest the claim limitations directed to displaying a first graphic object on a computer, and then displaying at least one point of interest on the computer when a pointing symbol is within a predetermined proximity of the first graphic object.



In contrast to Applicants' invention, Venolia does not identify "points of interest" on an object when a pointing symbol is within a predetermined proximity of the first graphic object.

Instead, the entire object is considered to be "magnetic," rather than any specific points of interest on the object. Moreover, the magnetic relationship is between two objects, not between a pointing symbol and an object. Finally, Venolia does nothing to identify points of interest, or even magnetic objects themselves, since all objects are considered to be magnetic.

The various elements of Applicants' claimed invention recited in claims 48 and 65 together provide operational advantages over Venolia. In addition, Applicants' invention as recited in claims 48 and 65 solves problems not recognized by Venolia.

Thus, Applicants submit that independent claims 48 and 65 are allowable over the reference. Further, dependent claims 49-64 and 66-81 are submitted to be allowable over the reference in the same manner, because they are dependent on independent claims 48 and 65, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 49-64 and 66-81 recite additional novel elements not shown by the reference.